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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/574,461	11/30/1995	ANTHONY D. BARONE	16528X-0155-	6825

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EXAMINER

PONNALURI, PADMASHRI

ART UNIT	PAPER NUMBER
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1639

DATE MAILED: 12/18/2002

46

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/574,461

Applicant(s)

Barone et al

Examiner

Padmashri Ponnaluri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Sep 23, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-15, and 37-52 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-15, and 37-52 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

1. The response filed on 9/23/02 has been fully considered and entered into the application.
2. Claims 1-8, 10-15, and 37-52 are currently pending and are being examined in this application.
3. The obviousness-type double patenting rejections of record over US Patents 5,843,655 and 6,238,862, have been withdrawn in view of filing of Terminal Disclaimer.
4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-8, 10-15 and 37-39, and 40-56 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lam et al (US Patent 5,640,489), for the reasons set forth in the previous office action mailed on 10/5/01.
6. Claims 1-8, 10-15 and 37-39, and 40-56 (newly added) are rejected under 35 U.S.C. 103(a) as being unpatentable over Lam *et al* [5,640,489; 102(e) date of at least 7/2/91] in view of Holmes [US 5,679,773] and applicants' disclosure of the prior art teachings, for the reasons set forth in the previous office action mailed on 10/5/01.
7. The written description rejection of record of claims 40-48, 50, 52-56 have been maintained for the reasons of record set forth in the previous office action mailed on 4/23/02.
8. The scope enablement rejection of record of claims 40-48, 50, 52-56 has been maintained for the reasons of record set forth in the previous office action mailed on 4/23/02.

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Response to Arguments

9. *Applicant's arguments filed on 9/23/02, regarding the written description rejection of claims 40-48, 50, and 52-56 have been fully considered but they are not persuasive.*

Applicants argue that applicants are neither required to disclose nor describe every species to meet the written description requirement. Applicants arguments are not persuasive, since the specification does not sufficiently teach the different polymers as claimed. The specification examples are drawn to peptides and nucleic acids, and would not read on the polymers as claimed. Applicants argue that the examples in the specification clearly demonstrate relevant characteristics in synthesizing a preselected array of diverse polymers. Applicants arguments have been considered, but are not persuasive because ~~the~~ at the time the invention was made it was not well known in the art to make polymer array synthesis other than peptide or oligonucleotide array. The specification does not give guidance on how to link the monomers (other than amino acids and nucleic acids) of the polymers to the support such that they are cleavable or how to label the polymers, such that efficiency of synthesis step is detected.

Applicants argue that 'numerous descriptions in the specification disclose embodiments where amino acids are used as the monomers to synthesize diverse polymers. Such synthesis occurs through the coupling of amino groups and carboxyl groups. Therefore, any other monomers having amino and carboxyl groups could be coupled similarly by one skilled in the art using routine experimentation. Applicants arguments have been considered and it is clear that

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the specification discloses only peptides as polymers, not any other polymers as applicants argue.

It is noted that the instant claims do not recite that the monomers of the polymers have carboxyl and amino terminal groups as in applicants response.

Applicants argue that even if it is more difficult to synthesize some of the species of diverse polymers, the representative examples and description in the specification provide adequate disclosure such that one skilled in the art could synthesize any species of diverse polymers within the scope of the claims 40-48, 50 and 52-56. Applicants arguments have been considered. The specification description of peptide array and oligonucleotide array is not representative of the claimed genus "polymers".

Applicants argue that examiner has provided no such evidence that the diverse polymers of claims 40-48, 50, 52-56 are unpredictable such that one skilled in the art in view of the specification as filed and in view of knowledge in the art could not arrive at applicants' invention. Applicants arguments have been considered, but are not persuasive. Since at the time the invention was made the methods of synthesis of polymers other than peptides and oligonucleotides on an array by attaching step by step individual monomers to a solid support are not known. Applicants have not shown how polymers other than the peptides and oligonucleotides are synthesized on a support and monitored the synthesis for efficiency as claimed. The rejections of record have been maintained for the reasons of record.

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10. *Applicant's arguments filed on 9/23/02, regarding the scope enablement rejection of claims 40-48, 50, 52-56, have been fully considered but they are not persuasive.*

Applicants argue that the specificating as filed discloses numerous modes of making and using the invention which are applicable to diverse polymers within the scope of the claims. Applicants refer to the specificating page 3, line 27 to page 4, line 1; and specification pages 19, and 40. Applicants arguments have been considered, but are not persuasive, because the specification disclosure applicants referring to is drawn to general description of the invention. However, the specification no where discloses how to synthesize an array of polymers other than the peptides and oligonucleotides.

Applicants further argue that the examiner has failed to provide any evidence that one skilled in the art would have to undertake undue experimentation to arrive at applicants' claimed subject matter. Applicants arguments have been considered but are not persuasive, because at the time the invention was made the methods of synthesis of polymers other than peptides and oligonucleotides on an array by attaching step by step individual monomers to a solid support are not known. Applicants have not shown how polymers other than the peptides and oligonucleotides are synthesized on a support and monitored the synthesis for efficiency.

Applicants have referred to several US applications, in which it is recited "polymers" or "polymer synthesis". However, none of these references specifically teach synthesis of polymers other than the synthesis of peptides and oligonucleotides. Thus, applicants arguments have been

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considered but are not persuasive. Thus, the rejections of record have been maintained for the reasons of record.

11. *Applicant's arguments filed on 9/23/02, regarding the rejection of claims over Lam et al, have been fully considered but they are not persuasive.*

Applicants argue that Lam fails to disclose or teach or suggest measuring presence of diverse unbound polymers as an indicator of the efficiency of the synthesizing step. Applicants argue that Examiner has cited Example 7 of Lam. Examiner fails to appreciate that no diverse polymers are measured as an indicator of the efficiency of the synthesizing step.

Applicants arguments have been considered but are not persuasive. Lam et al teach the synthesis of random bio-oligomer which may be peptides or oligonucleotides or a peptide oligonucleotide chimera. Lam et al teach synthesizing arrays of polymers using different protocols in order to compare the results of the synthetic process on the array produced. Lam et al conclude that the random peptide synthesis method of the invention permits the synthesis of a library of random peptides in substantially equimolar amounts, in contrast to the standard SPPS technique. Even though the reference does not specifically teach 'efficiency as an indication of synthesizing step', Lam et al show or conclude that the disclosed random peptide synthesis is equimolar distribution of amino acids, which refers to the efficiency of the synthesis steps.

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*Applicants further argue that 'it is PTH derivative that is measured by the automated sequencer used in Lam and not any unbound polymer as claimed.' Applicants arguments have been considered but are not persuasive, because the reference discloses the use of cleavable linkers in the synthesis of array of peptides. Lam et al disclose the methods to selectively cleave the peptides from the array resulting unbound peptides. The reference further discloses that the **unbound or cleaved peptides structure and sequence is determined**. From the teachings of the reference it is obvious to one skilled in the art at the time of the invention to synthesize random peptides and cleaving random peptides from the support to form a mixture of unbound polymers (or peptides) and test the cleaved peptides. Lam et al specifically teach a library of **synthesis of random peptides and cleaving the peptides from the support**. The unbound or cleaved peptides was compared with the peptides of the standard solid phase peptide synthesis. Thus the reference is analyzing the efficiency of the disclosed solid phase synthesis. The rejections of record clearly teach the invention as claimed.*

Applicants further argue that Lam et al do not teach the synthesis of array at two different synthesis protocols. Applicants arguments have been considered but are not persuasive, because the instant claims do not recite that the two different arrays synthesized are on the same solid support as applicants refer to. The reference disclosure of synthesis of random tetrapeptide library synthesis and compared SPPS would refer to the two different arrays in the instant claim. The instant claims further do not recite the exact method steps of each of different array

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synthesis which differ from each other. Thus the rejections of record have been maintained for the reasons of record.

12. *Applicant's arguments filed on 9/23/02, regarding the rejections of claims over Lam et al and Holmes et al have been fully considered but they are not persuasive.*

Applicants arguments regarding the rejection of claims over Lam et al in view of Holmes et al are based on individual reference teachings. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See In re Keller, 642 F.2d 413, 208 U. S. P. Q. 871 (CCPA 1981); In re Merck & Co., 800 F.2d 1091, 231 U. S. P. Q. 375 (Fed. Cir. 1986).

Applicants argue that Lam and Holmes fail to teach or suggest measuring the presence of diverse unbound polymers as indicator of the synthesizing step. Applicants arguments have been considered but are not persuasive for the reasons discussed supra.

Applicants argue that Lam does not teach or suggest any step of measuring presence of diverse unbound polymers as indicator of the synthesizing step, but instead Lam teaches away by measuring the monomeric derivatives, i.e., unbound monomers such as PTH derivatives from Edman degradation. Applicants arguments have been considered but are not persuasive, because Lam et al specifically teach method for synthesis of random peptide library and method of cleaving the peptides from the support and analyzing the cleaved peptide. Thus, the reference clearly teach unbound peptide (more than a single monomer) analysis.

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Applicants arguments regarding the references do not teach a method involving synthesizing a preselected array of diverse polymers have been considered but are not persuasive. Because the instant claims do not recite that the two different arrays synthesized are on the same solid support. The reference disclosure of synthesis of random tetrapeptide library synthesis and comparison of SPPS would refer to the two different arrays in the instant claim. The instant claims further do not recite the exact method steps of each of different array synthesis which differ from each other. Thus the rejections of record have been maintained for the reasons of record.

13. No claims are allowed.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to P. Ponnaluri whose telephone number is (703) 305-3884. The examiner is on *Increased Flex Schedule* and can normally be reached on Monday to Friday from 7.00 AM to 3.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang, can be reached on (703) 306-3217. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

P. Ponnaluri
Patent Examiner
Technology Center 1600
Art Unit 1639
14 December 2002


PADMASHRI PONNALURI
PRIMARY EXAMINER